

7. Mobility Strategic Goal

“Shape an accessible, affordable, reliable transportation system for all people, goods and regions”

7.1 Outcomes

1. Improve the physical condition of the transportation system
2. Reduce transportation time from origin to destination for the individual transportation user
3. Increase the reliability of trip times for the individual transportation user
4. Increase access to transportation systems for the individual transportation user
5. Reduce the cost of transportation for the individual user

7.2 Strategies

Since the nation’s founding, the mobility transportation provides has helped to define us as a people. Our ability to travel from place to place allows us to connect with other people, work, school, community services and marketplaces. Mobility often defines the economic geography of regions within the nation. In partnership with the States and private transportation providers, we have made continuous improvements in mobility throughout the nation.

Since 1993, almost 5,000 miles of the National Highway System have been restored to acceptable condition. More than 100 miles of new rail transit have been opened increasing mobility and improving the livability of our communities. Investment in transportation infrastructure has grown nearly 74 percent from the 1990-1993 average to the year 2000.

DOT’s mobility outcomes represent our continuing commitment to an accessible, reliable and affordable transportation system. We will employ seven basic strategies to achieve our mobility outcomes. These strategies address regional as well as local transportation and are directed toward improving the transportation experience of the individual user whether for personal or business reasons.

We will: 1) maximize the efficiency of our transportation resources; 2) increase access to transportation for all Americans; 3) assure mobility in emergencies and other disruptions; 4) provide timely information on local, regional, national and global transportation needs; 5) conduct research on mobility issues; 6) develop performance based standards for vehicles and infrastructure; and 7) explore incentives for improving mobility.

These strategies anticipate the requirements of the growing population of older Americans as well as the increasing number of household deliveries. They address intermodal connections and the transportation needs of key geographic areas and regions. They include important initiatives such as the MARAD-Coast Guard multi-year effort dedicated to improving maritime freight transportation.

In contrast to the DOT safety strategies all of which supported our safety outcomes of reduced fatalities and injuries, our mobility strategies are targeted to specific mobility outcomes. The resources and programs listed in DOT's Annual Performance Plan and budget are necessary to achieve the mobility outcomes presented above and execute the strategies presented below. Each year, DOT reassesses its performance goals and targets based upon appropriations. The schedule for executing the strategies extends from the present through 2005. We will continue to benchmark and improve processes and move quickly toward electronic government to improve our efficiency and customer service.

7.2.1 Strategies for the Efficient Use of Transportation Resources:

- a. Collaborate with the private sector and the scientific community to support research and create incentives for deployment of technologies that increase fuel efficiency and eliminate emissions. (Supports outcome 5)
- b. Partner with stakeholders to support research, development and deployment of new technologies that adapt the transportation infrastructure and vehicles to the evolving needs of individuals, families, and the workforce. (Supports outcomes 1-5)
- c. Collaborate with public and private transportation providers to leverage financial resources through regional planning efforts that improve intermodal connections and efficiency. (Supports outcomes 2, 3, 4 and 5)
- d. Encourage transportation agencies to integrate bicycling and walking as part of their planning, design, construction, operations and maintenance activities. (Supports outcome 4)
- e. Reduce congestion and demand for traditional transportation by promoting a shift to more efficient transportation modes, methods and use of alternatives to transportation (e.g., bicycles, telecommuting, teleconferencing etc.). (Supports outcomes 2 and 3)
- f. Promote land use that supports smart growth, shorter trips and availability of more transportation options by building coalitions with regional, state, metropolitan planning organizations, and other local interests. (Supports outcomes 2 and 4)
- g. Use web-enabled and other information technologies to provide services to grantees and other customers. (Supports outcomes 1-5)
- h. Encourage regional transportation planning including across state lines and international boundaries. (Supports outcomes 1 –5)

7.2.2 Strategies for Increasing Access to Transportation for all Americans:

- a. Work with public and private sector interests to: identify transportation needs for all segments of America, especially the transportation disadvantaged, older and younger people, and people with disabilities; and supplement market mechanisms to assure basic transportation availability, and flexibility of choice for all Americans. (Supports outcome 4)
- b. Partner with current and potential transportation users to identify accessibility issues for various groups and implement actions to address those issues. (Supports outcome 4)

- c. Work with public and private sector interests to improve accessibility in key segments of the transportation system including in geographic areas such as inner-cities, underserved areas, regions of the country, key corridors, bottlenecks and intermodal connections. (Supports outcomes 2, 3 and 4)
- d. Collaborate with shippers, carriers and other users to identify future transportation accessibility and mobility needs and map out ways to achieve better freight mobility and improve the delivery of goods throughout the entire nation. (Supports outcomes 2, 3, 4 and 5)

7.2.3 Strategies for Assuring Mobility in Response to Disruptions and Emergencies:

- a. Use web-based and other new technologies to update contingency planning and to improve response and restoration actions to damaged infrastructure and operations, including damage due to weather and other natural disasters. (Supports outcomes 1, 3 and 4)
- b. Collaborate with government and private interests to upgrade mechanisms to predict and respond to catastrophic transportation disruptions. (Supports outcomes 1, 3 and 4)
- c. Research what other nations have done and promote new design specifications for the infrastructure that minimize disruption and damage to transportation systems from natural disasters, severe weather and other catastrophic events. (Supports outcome 1)

7.2.4 Information Sharing, Analysis and Customer Focus Strategies:

- a. Keep abreast of changing local, regional, national and global transportation needs; propose changes to address those needs; and use web-enabled and other new communications technologies to communicate with constituencies. (Supports outcomes 1-5)
- b. Work more closely with the transportation community to develop the vision, knowledge and technical assistance needed to improve mobility decision-making by public and private organizations. (Supports outcomes 1-5)
- c. Increase the timeliness, validity and reliability of transportation data related to mobility issues by taking advantage of web-enabled, and other new information technologies. (Supports outcomes 1-5)
- d. Collect, analyze and publish, in user-friendly formats and understandable to people without transportation expertise, mobility data and information to identify critical trends and issues. (Supports outcomes 1-5)

7.2.5 Research and Development Strategy: Expand alliances with a wide range of public and private stakeholders in all modes to:

- a. Explore the complex relationship between transportation and society including the relationship between mobility and well-being; (Supports outcomes 1-5)
- b. Conduct research on advanced materials and design concepts that could improve the durability, reliability and longevity of infrastructure systems while reducing the cost, waste, pollution and emissions generated in producing them; (Supports outcomes 1, 4, and 5)
- c. Investigate computer aided planning and design tools and methods for reducing the time and cost of infrastructure monitoring, maintenance and renewal; and (Supports outcome 1)
- d. Conduct research on human-centered transportation systems that could provide affordable access for aging and transportation-disadvantaged populations. (Supports outcome 4)

7.2.6 Performance-Based Standards Strategy: Collaborate with stakeholders to:

- a. Promote performance-based standards that accelerate the deployment of new infrastructure and vehicle technologies and systems; and (Supports outcomes 1, 2, 3 and 5)
- b. Establish performance-based standards that minimize infrastructure disruption and damage from catastrophic events that interrupt transportation. (Supports outcomes 1 and 3)

7.2.7 Incentives Strategy: Collaborate with stakeholders to explore incentives for improving mobility, including proposing legislation where needed, to:

- a. Reduce the time and cost of infrastructure development, deployment and maintenance; and (Supports outcomes 1 and 3)
- b. Establish cost shared, public-private partnerships to accelerate the development, demonstration, and deployment of new technologies and systems that improve mobility. (Supports outcomes 1 and 4)

7.3 Management Challenges

The strategies we outlined in the previous section represent our approach to the mobility performance challenges we will face in the future. However, we acknowledge that achievement of our mobility outcomes is contingent upon addressing the priority mobility management issues identified by the GAO and DOT's OIG which are discussed below. The language that describes each challenge is essentially the language used by the OIG.

7.3.1 Air Traffic Control Modernization

The OIG has stated that U.S. airlines transport over 600 million passengers annually, and this number is expected to grow to over 900 million by 2010. To meet this demand for air travel and decrease the number of flight delays, FAA is modernizing the Nation's air traffic control system by acquiring a network of radar, automated information processing, navigation, and communications equipment. The OIG has listed several management challenges.

- Strengthen FAA's capacity to oversee multi-billion dollar software-intensive development efforts.
- Institute cost control mechanisms for software-intensive contracts to ensure products are delivered approximately on time and within agreed upon budget parameters.
- Identify and resolve human factors issues early in the acquisition process to avoid cost overruns and schedule delays.
- Definitize baseline plans for transitioning to satellite-based systems for communications, navigation, and surveillance.

The FAA has acknowledged this challenge and is engaged in a comprehensive program to modernize the air traffic control system. This includes replacement of controller workstations and automation software; replacement of radar surveillance systems; modernization of voice communication systems; and the introduction of enhanced automation aids, data link, and improved weather systems. To address this challenge the FAA mobility agenda includes the following milestones which support achievement of outcomes 2, 3, and 5.

***Milestone:** Complete cost, schedule, and performance baselines for major acquisition programs and evaluate all capital portfolio investments. Any changes to acquisition program baselines must be reviewed and approved by*

the executive-level Joint Resources Council. (FY 2001)

Milestone: Use of Earned Value Management for all appropriate acquisition programs. (FY 2001)

Milestone: Continue implementation of FAA integrated Capability Maturity Model (iCMM) in targeted FAA acquisition programs to increase the number of programs certified at capability maturity level 2 and beyond. (FY 2002)

Milestone: Ensure human factors policies, processes and procedures are integrated in the research and acquisition of 100 percent of FAA aviation systems and applications. (FY 2005)

Milestone: Ensure that the FAA national airspace system architecture and capital investment plans are tied to FAA strategic plan goals.

Milestone: The Administrator, the Deputy Administrator, and FAA senior management will meet at least quarterly to review all FAA Corporate Projects. Projects addressed will include key acquisitions and other projects associated with air traffic control modernization. Where projects are not on schedule/on target, agree upon actions to bring them back on track. (FY 2000-2005)

7.3.2 Amtrak Financial Viability and Modernization

The OIG has stated that since 1971, Amtrak and Congress have shared a common goal of Amtrak's operating a national passenger rail system without federal operating assistance. The 1997 Amtrak Reform and Accountability Act (ARAA) mandated that Amtrak develop a plan to eliminate its need for federal operating support after FY 2002.

The FRA has acknowledged this issue and will pursue the following milestone in support of outcome 2.

Milestone: Acela high-speed service is expected to be introduced on the Northeast Corridor during 2000. No significant financial impact is expected in 2000 from the delay. The OIG is performing an assessment of Amtrak's 2000 business plan and will update the at risk numbers in 2000.

7.4 Completed Program Evaluations

Mobility is defined in part by the condition and performance of the nation's transportation infrastructure. To estimate the level of investment needed in a key component of the system, DOT conducted a study of the cost to maintain or improve the mass transit system.

7.4.1 Status of the Nation's Transit Systems: Conditions and Performance

(FTA): The purpose of this evaluation was to report to Congress on the condition and operating performance of the Nation's public transit system. The report, published in March 2000, includes an estimate of the investment needed to maintain and improve the system. The report revealed that the average annual capital investment necessary to maintain the mass transit systems in their current condition and operating performance is \$10.8 billion in 1997 dollars and the cost of improving conditions and performance is \$16.0 billion. This program evaluation contributed to our strategy for the efficient use of transportation resources, 7.2.1.c – "collaborate with public and private transportation providers to leverage financial resources...." in support of outcome 1.

7.5 External Factors

DOT used four scenarios¹ in the planning process to illustrate how external factors might impact mobility in the next 30 years. Globalization, demographics, the U.S. economy and the role of government were the major dimensions of the scenarios. We learned that these and many other external factors such as the political acumen of aging baby boomers, changing travel patterns, and the economic integration of larger regions, may play a part in our ability to achieve our mobility outcomes. Unable to predict how these complex external factors may interact to effect transportation, we have presented both positive and negative consequences of trends closely related to mobility.

7.5.1 Economic Factors

Cyclical and long-term changes in economic activity have a strong impact on the level of urban and intercity travel: economic growth increases travel but economic downturns decrease travel at the margins. (Impacts outcomes 1 – 5)

E-commerce and web enabled business will affect the nature of business-to-business transactions, the location of warehousing, shopping and travel, and traffic in residential areas because of increased freight deliveries to homes and businesses. (Impacts outcomes 1, 2 and 4)

7.5.2 Technological Factors

Improvements in the fuel efficiency of the automobile fleet, whether through new technologies such as hybrids, market-driven responses to increased gasoline prices, or changes in the preferences of consumers for smaller vehicles, would decrease gasoline use associated with a given level of travel, leading to reduced user-based revenues that fund DOT programs. (Impacts outcomes 1 and 5)

The development, adoption, and acceptance of intelligent transportation and navigation technologies may increase the carrying capacity of existing road networks and reduce the variability of travel times due to incidents. (Impacts outcomes 2, 3 and 4)

Technological improvements to alternatives to the internal combustion engine will affect the user cost of automobile use. (Impacts outcome 5)

7.5.3 Political Factors

Changes in government regulation of the transportation industry could affect their costs, willingness to deliver and the distribution of their services. Continuing the thrust of Vice President Gore's regulatory reform initiative will improve the performance of transportation providers. (Impacts outcome 5)

With the increasing population share of elderly persons and ethnic minorities will come increasing political power of these groups. To the extent that the mobility needs and desires of these groups differ from the current population mix, government transportation priorities may be altered. The aging of the population, urban sprawl and accessibility to jobs and services will increase the need for delivering efficient, affordable and accessible transport. (Impacts outcomes 2, 3, 4 and 5)

Changes in the nature of economic activity will affect the forces of agglomeration and urbanization which hold cities together, resulting in possible changes in the size and geographic distribution of urban areas. (Impacts outcomes 2 and 4)

¹ DOT's global transportation scenarios are at www.dot.gov/stratplan

7.5.4 Environmental Factors

Environmental concerns about preserving habitat or other natural places may limit future petroleum exploration and extraction and lead to decreases in available reserves. (Impacts outcome 5)

Environmental concerns may preclude or limit additions to or expansions of the existing transportation network, leading to deteriorating physical conditions and increased travel times and user costs. (Impacts outcomes 1 – 5)

Reducing greenhouse gas emissions likely requires reducing the use of fossil fuels, requiring some combination of decreased travel, improved vehicle fuel efficiency, or alternative propulsion technologies. (Impacts outcomes 2, 3, 4 and 5)

7.5.5 Social Factors

Regionalization of transportation systems will provide different population groups greater involvement in planning and increased access to those systems. (Impacts outcome 4)

Concerns about safe driving by young and elderly drivers may lead to greater restrictions on drivers' license privileges, requiring more public transit (including demand responsive services) and opportunities for walking and bicycling to provide for the mobility needs of these groups. (Impacts outcomes 2, 4 and 5)

Accessibility and meeting the physical and service needs for all the population is a challenge that will involve serving multiple generation households, families with children, persons with disabilities, and the retired and elderly. (Impacts outcomes 3 and 4)

Increases in the share of workers who telecommute part time or full time imply that the location and type of transportation necessary to support a given level of economic activity will change. (Impacts outcome 2, 3, 4 and 5)

Changes in urban land use preferences by residents and firms will affect future urban growth patterns and the type of transportation infrastructure and vehicles necessary to serve such patterns. (Impacts outcomes 1, 4 and 5)

7.6 Relationship Between Strategic Plan Outcomes and Performance Plan Candidate Measures

Each mobility outcome in this Strategic Plan for 2000-2005 will be supported by one or more mobility performance measures fully developed in DOT's Annual Performance Plans for the fiscal years 2002-2005. There are three new mobility outcomes in this strategic plan that were not in DOT's 1997-2002 Strategic Plan. We understand that we will need to develop performance measures for these new outcomes .

DOT's Annual Performance Reports will provide targets, narrative and quantitative information on the extent to which we have achieved each of our mobility outcomes. Table 7.6 illustrates the relationships between the outcomes in the Strategic Plan and the measures in the Performance Plan. The measures presented in Table 7.6 are candidates for the Performance Plan and not final selections.

Table 7.6 Mobility Strategic Goal, Outcomes and Performance Plan Candidate Measures	
<i>“Shape an accessible, affordable, reliable transportation system for all people, goods and regions.”</i>	
Outcomes	Performance Plan Candidate Measures
<p>Improve the physical condition of the transportation system</p> <p>Reduce transportation time from origin to destination for the individual user</p> <p>Increase the reliability of trip times for the individual user</p> <p>Increase access to transportation systems for the individual user</p> <p>Reduce cost of transportation for the individual user</p>	<p><u>Physical Condition</u></p> <p>Percentage of miles on the National Highway System (NHS) that meet pavement performance standards for acceptable ride</p> <p>Percentage of bridges on the NHS that are deficient.</p> <p>Percent of runway pavement in good or fair condition (commercial service, reliever, and selected general aviation airports)</p> <p>Average condition of motor bus fleet</p> <p>Average condition of transit rail vehicle fleet</p> <p><u>Time/Reliability</u></p> <p>Hours of delay per 1000 vehicle miles traveled on federal-aid highways</p> <p>Aviation delays per 100,000 activities</p> <p>Percentage of ports reporting land and waterside impediments to flow of commerce</p> <p>Number of metropolitan areas where integrated ITS infrastructure is deployed</p> <p>Number of runways that are accessible in low visibility conditions</p> <p><u>Accessibility</u></p> <p>Percent of key transit rail stations that are ADA compliant.</p> <p>Percent of bus fleets that are ADA compliant</p> <p><u>Cost</u></p> <p>Amtrak intercity ridership</p>

7.7 Data Capacity

The candidate performance measures in Table 7.6 above include measures utilized in DOT’s 2001 Performance Plan and new candidate measures for mobility. DOT has developed data for each measure and has published source and accuracy statements for each of the data systems used in constructing these measures.² We have described the scope of each measure, the limitations of the data and the statistical issues regarding uncertainty in the measurement.³ Led by the Bureau of Transportation Statistics (BTS), DOT’s operating administrations are implementing a plan for verification and validation of all DOT data used in implementing GPRA and for other analytical purposes.⁴ We are committed to continuous improvement in the accuracy, reliability and timeliness of mobility data and to publishing data in user-friendly formats that are understandable

² See www.bts.gov

³ See Appendix I [DOT 2001 Performance Plan](#)

⁴ See page 161 [DOT 2001 Performance Plan](#)

to people without transportation expertise. We will address the mobility data improvement issues described below.

Data Needs for Mobility

All mobility outcomes present complex measurement issues. Accordingly, DOT will: 1) develop a means of measuring user transportation cost, time, and reliability with time series data; 2) develop better approaches for measuring access; 3) develop a straightforward measure of congestion and its costs; 4) produce more timely and comprehensive data on the condition and use of the transportation system; and 5) develop a more complete understanding of variables influencing travel behavior.

7.8 Cross-Cutting Programs

DOT's staff collaborates with several federal agencies to coordinate and leverage resources on complementary projects and activities. Below we present a selection of our cross-cutting programs that are most directly aligned with our mobility outcomes.

7.8.1 Commuter Choice

Goal: Mitigate congestion and improve mobility by providing alternatives for driving to work alone. (Supports outcomes 2 and 5)

Agencies Involved: DOT/FTA lead, Departments of Health and Human Services and Labor, the Environmental Protection Agency, General Services Administration, Executive Office of the President, and Office of Personnel Management.

7.8.2 Access to Job and Reverse Commute

Goal: Assist individuals to move from welfare to work via access to transportation. (Supports outcomes 2, 4, and 5)

Agencies Involved: DOT/FTA lead, Departments of Housing and Urban Development, Health and Human Services, Agriculture and Labor, and the Small Business Administration.

7.8.3 All Weather Access to Airports

Goal: Increase the number of airport runways that are accessible in low visibility conditions. (Supports outcomes 1 and 3)

Agencies Involved: DOT/FAA lead, Department of Defense, National Oceanic and Atmospheric Administration, and the National Geodetic Survey.

7.8.4 National Dredging Team

Goal: Improve the physical condition of the transportation system by dredging shipping channels. (Supports outcomes 1 and 3)

Agencies Involved: DOT/MARAD lead, Army Corps of Engineers, and the Environmental Protection Agency.

7.8.5 Maritime Transportation System

Goal: Advance maritime freight transportation in accordance with DOT's Maritime Transportation System initiative and TEA-21 provisions. (Supports outcomes 1 through 5)

Agencies Involved: DOT/MARAD and USCG co-leads, Army Corps of Engineers, Environmental Protection Agency, National Oceanic and Atmospheric Administration, National Fisheries Institute, the American Association of Port Authorities, the Intermodal Association of North America, the American Bureau of Shipping, and the National Industrial Transportation League.